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establishment in New York, with five cents in stamps on the envelope!) I am aware that in several of my own published papers the objectionable abbreviations occur, but these (and many other queer things) are due to editorial interference.

T. D. A. COCKERELL.

'TABLETTES ZOOLOGIQUES.'

TO THE EDITOR OF SCIENCE: Will you kindly give me space to inquire if any reader of SCIENCE knows of the existence in the United States of a copy of the 'Tablettes Zoologiques'? This journal was published at Poitiers, France, by Aimé Schneider. The first volume appeared in 1885, and the third, which I think was the last, in 1892. I have as yet been unable to locate a copy in America, and any information will be very gratefully received.

HOWARD CRAWLEY.

WYNCOTE, PA.,

June 12, 1903.

SHORTER ARTICLES.

UNUSUAL ABUNDANCE OF A MYRIAPOD, *PARAJULUS PENNSYLVANICUS* (BRANDT).*

DURING the latter part of August and the first of September, 1902, the walks and drives along the university campus were overrun with a myriapod which proved to be *Parajulus pennsylvanicus* (Brandt). Bright, sunny days, which were likewise cool, were observed to bring a greater number of the species into evidence. Complaints were made by residents along the adjacent avenues of the numbers of these 'worms,' as they were called, which covered the sidewalks and terraces and even entered the residences. Often in passing along the paths running in the campus it was found to be difficult, if not impossible, to avoid crushing numbers at every step. They exhibited no general direction to their movements, and hence a migration from one portion of this locality to another definite locality seems not to be the case. Rather it seems that they were trying to find higher or perhaps dryer ground. When one was taken up

in the fingers and then allowed to move in a direction opposite to its original direction, it showed no sign of any attempt at orientation.

A case similar to this one is found every year on Cedar Point, Sandusky, O., where *Fontaria indiani* Bollman, immediately prior to and during ovipositing, is found in great numbers along the lowlands on the Bay side. But in the case of the one mentioned above as occurring on the campus, of all the females examined, none contained eggs. Hence this is not a true parallelism.

Several cases of extensive migrations of myriapods are on record. In the *Zoologischer Anzeiger* for 1900, Verhoeff records a migration of such extent that railroad trains were stopped, owing to the numbers that were crushed under the wheels and thus caused them to slip. The species in this case was *Julus terrestris*. Verhoeff also calls attention to a description of an extensive migration of a species of *Brachyulus*, given in the same journal by an Austrian named Paslavisky, who states that in 1879, in Austria, this species was excessively numerous in a certain district. Verhoeff regards the cause of such movements as due to over-population, and hence an attempt to obviate the results of the law of Malthus. That this is not the cause in all cases is attested by that of the species of *Fontaria* that I mentioned as occurring on Cedar Point, which is undoubtedly a purely sexual matter. A third record of such movements is given in Bollman's 'Myriapoda of North America,' in which, on page 75, he mentions the occurrence of *Fontaria virginicensis* (Drury) in Donaldson, Arkansas, in such numbers as to attract general attention. The adults were found to bear a ratio to the number of young that were observed with them of about one to three hundred. Apparently, this movement is due to a third reason—the migration of the adults with the young. Miss Mauck (*American Naturalist*, XXXV., 447) gives an account of a migration of *Fontaria virginicensis* (Drury) but no cause is assigned to the movement.

To conclude, every one of the cases of extensive migrations in myriapoda that have

* Read at Columbus meeting, Ohio Academy of Science, November, 1902.